

Check Prime Numbers

```
int main()
{
    int i;
    cout << "Enter a positive integer: ";
    cin >> i;
    cout << endl << i << " is ";
    if( !isPrime( i ) )
        cout << "not ";
    cout << "a prime number\n\n";
}
```

```
bool isPrime( int i )
{

}
```

```
int main()
{
    int i;
    cout << "Enter a positive integer: ";
    cin >> i;
    cout << endl << i << " is ";
    if( !isPrime( i ) )
        cout << "not ";
    cout << "a prime number\n\n";
}
```

```
bool isPrime( int i )
{
    for( int j = 2; j < i; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}
```

```

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    cin >> i;
    cout << endl << i << " is ";
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        cout << "not ";
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}

```

```

bool isPrime( int i )
{
    for( int j = 2; j < i; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}

```

i		0012FF78
		0012FF79
		0012FF7A
		0012FF7B
	35	0012FF7C
		0012FF7D
		0012FF7E
		0012FF7F

```

int main()
{
    int i;
    cout << "Enter a positive integer: ";
    cin >> i;
    cout << endl << i << " is ";
    if( !isPrime( i ) )
        cout << "not ";
    cout << "a prime number\n\n";
}

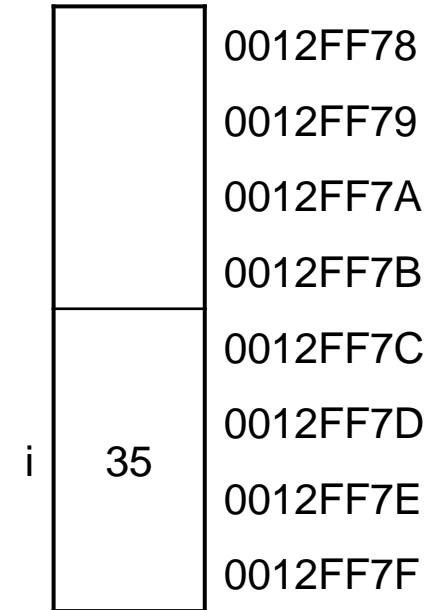
```

```

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{
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        if( ( i % j ) == 0 )
            return false;

    return true;
}

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```

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    int i;
    cout << "Enter a positive integer: ";
    cin >> i;
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```

```

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{
    for( int j = 2; j < i; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}

```

i		0012FF78
		0012FF79
		0012FF7A
		0012FF7B
	35	0012FF7C
		0012FF7D
		0012FF7E
		0012FF7F

j	2	0012FF18
		0012FF19
		0012FF1A
		0012FF1B
i	35	0012FF24
		0012FF25
		0012FF26
		0012FF27

```

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{
    int i;
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    if( !isPrime( i ) )
        cout << "not ";
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```

```

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{
    for( int j = 2; j < i; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}

```

i		0012FF78
		0012FF79
		0012FF7A
		0012FF7B
	35	0012FF7C
		0012FF7D
		0012FF7E
		0012FF7F

j	3	0012FF18
		0012FF19
		0012FF1A
		0012FF1B
i	35	0012FF24
		0012FF25
		0012FF26
		0012FF27

```

int main()
{
    int i;
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    cin >> i;
    cout << endl << i << " is ";
    if( !isPrime( i ) )
        cout << "not ";
    cout << "a prime number\n\n";
}

```

```

bool isPrime( int i )
{
    for( int j = 2; j < i; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}

```

i		0012FF78
		0012FF79
		0012FF7A
		0012FF7B
	35	0012FF7C
		0012FF7D
		0012FF7E
		0012FF7F

j	4	0012FF18
		0012FF19
		0012FF1A
		0012FF1B
i	35	0012FF24
		0012FF25
		0012FF26
		0012FF27


```

int main()
{
    int i;
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    cin >> i;
    cout << endl << i << " is ";
    if( !isPrime( i ) )
        cout << "not ";
    cout << "a prime number\n\n";
}

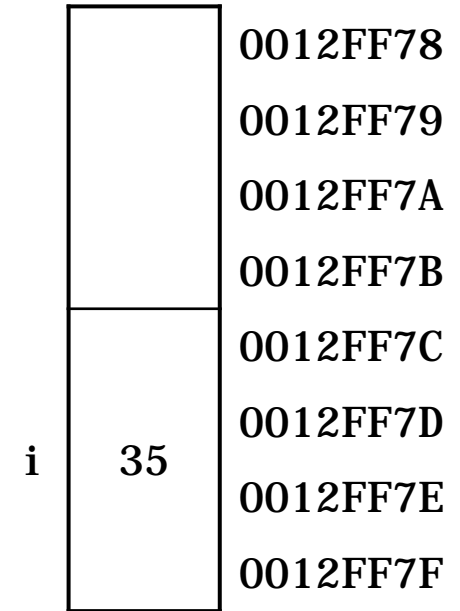
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```

bool isPrime( int i )
{
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        if( ( i % j ) == 0 )
            return false;

    return true;
}

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    cin >> i;
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    cout << "a prime number\n\n";
}

```

```

bool isPrime( int i )
{
    for( int j = 2; j < i; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}

```

i	0	0012FF78
		0012FF79
		0012FF7A
		0012FF7B
	35	0012FF7C
		0012FF7D
		0012FF7E
		0012FF7F

j	5	0012FF18
		0012FF19
		0012FF1A
		0012FF1B
	35	0012FF24
		0012FF25
		0012FF26
		0012FF27

Number of Primes

```
int main()
{
    int number;
    cout << "Enter a positive number: ";
    cin >> number;

    int numPrimes = 0;

    cout << numPrimes << endl;
}

bool isPrime( int i )
{
    for( int j = 2; j < i; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}
```

```
int main()
{
    int number;
    cout << "Enter a positive number: ";
    cin >> number;

    int numPrimes = 0;
    for( int i = 2; i <= number; i++ )
        if( isPrime( i ) )
            numPrimes++;

    cout << numPrimes << endl;
}

bool isPrime( int i )
{
    for( int j = 2; j < i; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}
```

```
int main()
{
    int number;
    cout << "Enter a positive number: ";
    cin >> number;

    int numPrimes = 0;
    for( int i = 2; i <= number; i++ )
        if( isPrime( i ) )
            numPrimes++;

    cout << numPrimes << endl;
}

bool isPrime( int i )
{
    int squareRoot = static_cast< int >( sqrt( static_cast< double >( i ) ) );
    for( int j = 2; j <= squareRoot; j++ )
        if( ( i % j ) == 0 )
            return false;

    return true;
}
```

```

int primes[ 100000 ];
int main()
{
    int number;
    cin >> number;
    primes[ 1 ] = 2;
    int numPrimes = 1;
    for( int i = 3; i <= number; i++ )
        if( isPrime( primes, i, numPrimes ) )
        {
            numPrimes++;
            primes[ numPrimes ] = i;
        }
    cout << numPrimes << endl;
}

```

	0	1	2	3	4	5	6
primes		2					

numPrimes 1 i 3

```

bool isPrime( int primes[], int i, int numPrimes )
{
    for( int j = 1; j <= numPrimes; j++ )
        if( ( i % primes[j] ) == 0 )
            return false;
    return true;
}

```

```

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        if( isPrime( primes, i, numPrimes ) )
        {
            numPrimes++;
            primes[ numPrimes ] = i;
        }
    cout << numPrimes << endl;
}

```

	0	1	2	3	4	5	6
primes		2					

numPrimes 2 i 3

```

bool isPrime( int primes[], int i, int numPrimes )
{
    for( int j = 1; j <= numPrimes; j++ )
        if( ( i % primes[j] ) == 0 )
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```

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        if( isPrime( primes, i, numPrimes ) )
        {
            numPrimes++;
            primes[ numPrimes ] = i;
        }
    cout << numPrimes << endl;
}

```

	0	1	2	3	4	5	6
primes		2	3				

numPrimes

2

 i

3

```

bool isPrime( int primes[], int i, int numPrimes )
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    for( int j = 1; j <= numPrimes; j++ )
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}

```

	0	1	2	3	4	5	6
primes		2	3				

numPrimes

2

 i

4

```

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```

	0	1	2	3	4	5	6
primes		2	3				

numPrimes 2 i 5

```

bool isPrime( int primes[], int i, int numPrimes )
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        if( isPrime( primes, i, numPrimes ) )
        {
            numPrimes++;
            primes[ numPrimes ] = i;
        }
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}

```

	0	1	2	3	4	5	6
primes		2	3				

numPrimes 3 i 5

```

bool isPrime( int primes[], int i, int numPrimes )
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            primes[ numPrimes ] = i;
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}

```

	0	1	2	3	4	5	6
primes		2	3	5			

numPrimes 3 i 5

```

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```

	0	1	2	3	4	5	6
primes		2	3	5			

numPrimes 3 i 6

```

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```

	0	1	2	3	4	5	6
primes		2	3	5			

numPrimes 3 i 7

```

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        {
            numPrimes++;
            primes[ numPrimes ] = i;
        }
    cout << numPrimes << endl;
}

```

	0	1	2	3	4	5	6
primes		2	3	5			

numPrimes

4

 i

7

```

bool isPrime( int primes[], int i, int numPrimes )
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```

	0	1	2	3	4	5	6
primes		2	3	5	7		

numPrimes

4

 i

7

```

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```

int primes[ 10000000 ];
int main()
{
    int number;
    cin >> number;
    primes[ 1 ] = 2;
    int numPrimes = 1;
    for( int i = 3; i <= number; i++ )
        if( isPrime( primes, i ) )
        {
            numPrimes++;
            primes[ numPrimes ] = i;
        }
    cout << numPrimes << endl;
}

```

	0	1	2	3	4	5	6
primes		2	3	5	7		

numPrimes 4 i 7

```

bool isPrime( int primes[], int i )
{
    int squareRoot = static_cast< int >( sqrt( static_cast< double >( i ) ) );
    for( int j = 1;                               ; j++ )
        if( ( i % primes[ j ] ) == 0 )
            return false;
    return true;
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```

```

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int main()
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    int number;
    cin >> number;
    primes[ 1 ] = 2;
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    for( int i = 3; i <= number; i++ )
        if( isPrime( primes, i ) )
        {
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    cout << numPrimes << endl;
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```

	0	1	2	3	4	5	6
primes		2	3	5	7		

numPrimes 4 i 7

```

bool isPrime( int primes[], int i )
{
    int squareRoot = static_cast< int >( sqrt( static_cast< double >( i ) ) );
    for( int j = 1; primes[ j ] <= squareRoot; j++ )
        if( ( i % primes[ j ] ) == 0 )
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```

```
int main()
{
    int number;
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    int numPrimes = 0;
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